

Operation of the video van requires two people. A computer operator (typically the crew chief), who is also responsible for the video, imaging, GPS processes and day to day operations. There is also a driver, who maintains the safe operation of the vehicle, control of the cautionary lights, reading signs into the microphone, and operating the 'color bar' button on the camera.

As the van is traveling and videotaping the roadway the image is sent from the video camera, directly to the video computer's overlay board, to be overlaid with constantly updated roadway information (i.e., date, route number, related roadway qualifier, direction, and route mileage). The computer receives the current milepost from the DMI, and updates the overlay accordingly in hundredth of a mile (approximately 53 feet) increments. The starting route information is entered at the beginning of each route to be filmed. The type of information that is updated can be modified to reflect local agency needs.

Once the image is overlaid it is then sent to the VCR and recorded. The overlaid image at each hundredth mile increment is also stored on one of the computer's removable hard drives as a JPEG file.

Use the following guidelines to set up the equipment for a video, imaging and GPS operation. The steps beginning with "(Driver)" are procedures for the driver to carry out, but should be done at the instruction of the computer operator or crew chief.

Note: Some actions called for are unique to DOT and may not apply as currently written, since your equipment configuration may be different.

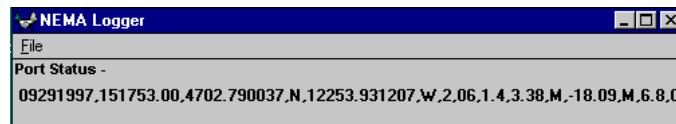
Setup

1. *(Driver)* Start the van.
2. *(Driver)* Turn on the microphone.
3. *(Driver)* Turn on the DMI and wait for the count hold indicator, then press 9-5 — Enter — Enter.
4. Turn on the Inverter (if it clicks, press the reset button located between the two outlets on its face).
5. Turn on the videolog computer (it will cycle through system checks for a minute or two).
6. Turn on the VCR.
7. Turn on the Pan/Tilt controller.
8. Turn on the Video Monitor.

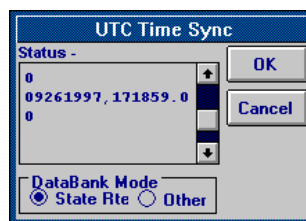
This step refers to the use of optional GPS equipment, and this portion of the software should be evaluated as to its accuracy before committing it to production. Alternatives will be discussed in future chapters.

Wait five minutes for the Differential Global Position System (DGPS) equipment to warm up before continuing. When turning on the DGPS equipment for the first time, it may take up to 30 minutes for the receiver to locate its current position.

9. Turn on the Laptop PC for GPS system. Now that everything is turned on, the following procedures can be done in route to the section where operations will begin. The laptop will automatically start NEMA Logger, the GPS software, after booting up. Choose Omnistar or CORS on the black box, depending what DGPS correction signal that you would like to use. If you are surveying in Eastern Washington you can use the Omnistar signal, since the area is mostly flat. In Western Washington the Omnistar signal is frequently blocked by various physical features (i.e., trees, mountains, etc.).

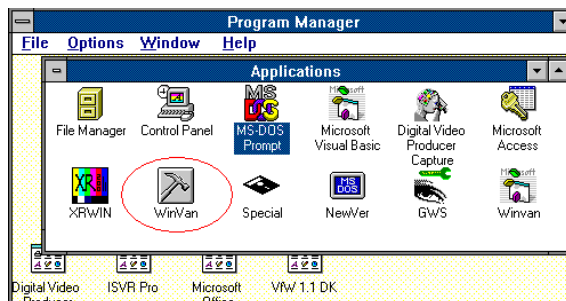


This is a picture of the GGL NEMA data stream, received from the satellites, and displayed in the NEMA logger software, on the laptop. If you see a information that looks like this, you are ready to start logging data.



Next you will be asked to synchronize the Video logging computer, with the time hack from the GPS NEMA data stream. This is the point that links your GPS with the milepost of the image. If you have a latitude and longitude showing in this window simple click OK, and the laptop is ready to go.

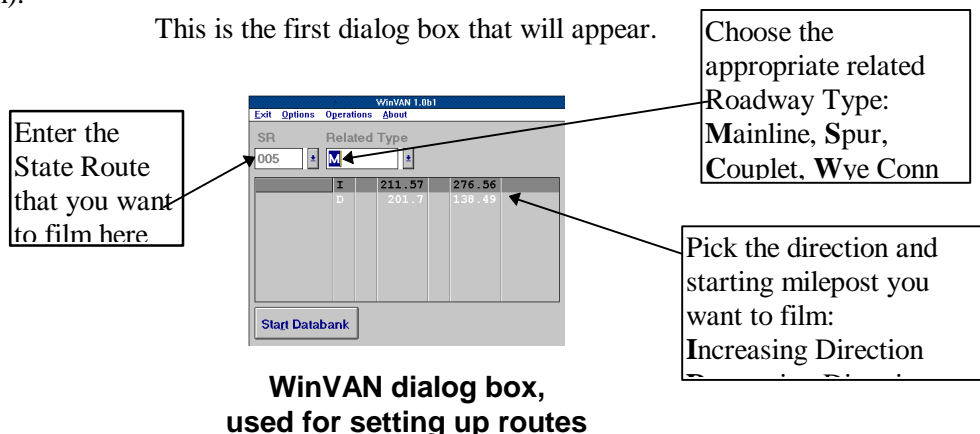
Next we will setup the Video logging computer



Screen print of Video logging PC's start up screen

10. Open up the applications window on the Video logging PC (by double clicking its icon if it's not already open) and choose WINVan (by double clicking its icon).

This is the first dialog box that will appear.

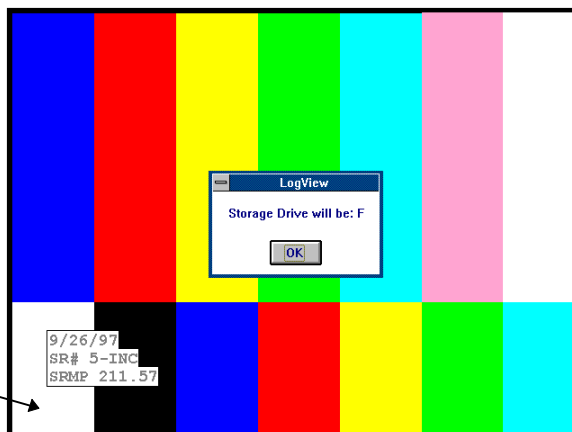


11. In the WinVAN dialog box, pick the SR # you are going to film and the appropriate related roadway qualifier "M" for Mainline, "C" for Couplet, "S" for Spur, etc. This will display the direction, beginning milepost, and ending milepost for each section of the chosen route.

This will need to be modified in the software to reflect the needs of your agency.

If you need to change the route length. Select the section of roadway you intend to videotape by clicking on it. This will open the Route Details dialog box with the route and starting milepost. Change the starting milepost if necessary then choose OK.

The Data bank contains:
Date of filming
State Route Number and
Direction filmed (**I**ncreasing or
Decreasing)
Beginning State Route Mile Post
(this number will be updated as
you film through the route)



Next a dialog box will appear letting you know where your images will be stored.

12. The data bank is the block of pertinent roadway information that should now be visible in the lower left hand corner of the monitor and will be overlaid on the video image as well. If the information in the data bank is correct, Click OK in the "LogView" dialog box.
13. (*Driver*) Before removing the lens cap from the camera, be sure the camera is in the color bar mode, and not pointed at the sun or anything reflecting the sun directly into the camera lens. Extremely bright light can damage the camera, causing permanent shadows in the picture.



When filming fog line should be in lower right corner of the monitor

14. Have the *driver* turn off the color bars using the button located on the upper portion of the back of the camera, labeled "DOWN" "(BAR)". It must be pressed and held for a moment.
15. Align the camera to its proper filming position using the pan/tilt controller. Certain applications or situations may require different alignment of the camera, such as going around corners or up and down hills. In these cases the operator will need to try for the best picture possible by aiming the camera.
16. Now that the camera is aimed, and the computers and DMI are set, insert a blank tape into the VCR. Reset the tape counter to zero, then simultaneously press the

PLAY and RECORD buttons on the VCR, then quickly press the PAUSE button. The VCR should now be paused in the record mode.

Note: When using a new tape, make sure the tape has been fast forwarded and rewound. This helps to prevent sticking during the filming process

17. Have the *driver* bring up the color bars on the camera. They should now be visible on the monitor.
18. Double check the data bank on the monitor to make sure the correct route information (for the segment you will be taping) is displayed. The milepost on the monitor should match that of the your agencies "Route Log".
19. Press PAUSE on the VCR to begin recording the color bar lead-in for the section and check the tape counter to make sure the tape is moving. Slowly count to ten, then press PAUSE again to stop recording. The VCR should be paused in the record mode, check the tape counter to verify that the tape is paused. If you have any trouble with the VCR see the operating instructions.

Each route you film needs to have color bars at the beginning and end for a lead in and out. This will help to separate the routes for duplication later.

20. Have the *driver* turn off the color bars. You should now have a on the monitor, a view of the roadway the camera is pointed at with the data bank on the lower left of the screen.

Note: It is important to coordinate your schedule so that you keep the sun to your side, above, or preferably at your back while filming.

Gathering Data

Before you start filming the route a certain amount of "lead-in" is required, after the color bars. This is footage that is shot as you approach the route to include signage, side streets and other information, that will help identify the beginning of the route. This normally starts about a quarter of a mile prior to filming the route, but the DMI is not started till the route actually begins. After stopping the DMI at the end of the route you must have some "lead out", by filming pasted the next route sign (typically within $\frac{1}{8}$ mile) in order to visually identify your location. If the survey begins on a regional, state, county or some other boundary, you maybe required to start filming one full mile lead-in. If the survey ends on a boundary, then you may want to film one full mile beyond the boundary. This is to accommodate maintenance agreements, that typically extend beyond boundaries.

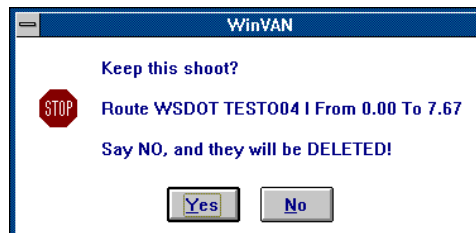
The video sequence of a route is: Color-Bars, Lead-in, Route, Lead-out, Color-Bars

To begin videotaping, start video recording at the lead in, wait for the location that starts the route (intersection, bridge seat, immobile structure with milepost location, etc.) to reach the bottom of the monitor and press the SPACE BAR, this starts the DMI. The data bank on the video monitor should now be updating the milepost. Check the tape counter to make sure that it is moving as well.

If using audio for video. The driver of the Van is required to read the entire text of each sign into the microphone (hold down the foot pedal to activate the microphone). There will be times, in highly congested areas, when you will not be able to read every sign in its entirety. This may occur due to the number of signs, the amount of information on signs, or traffic conditions. In these situations, you must read as much as you can or at least get the basic information.

The operator should constantly compare the data bank on the monitor with a road log to ensure that the correct data is being recorded. An error of + or - .01 mi. is acceptable, but **anything over that should be corrected as soon as possible**. If the data bank is .02 miles over, then type “-2” and the mileage displayed will decrease by .02 mi. Conversely, if the data bank is .02 under, type “+2” and the mileage will be increased by .02 mi. The “+” and “-” keys alone will increment the milepost by .01 mi. Your milepost reading should reflect the location of objects just leaving view from the monitor. If you notice an error is occurring consistently, it may be necessary to recalibrate the DMI and / or refilm the section.

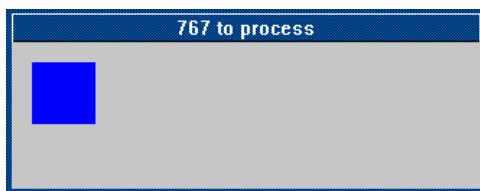
At the end of the survey (when the last milepost of the section being filmed appears in the data bank), and you have completed your lead out, have the driver turn ON the color bars and record approximately 10 seconds of the color-bars. At this point, press the PAUSE button on the VCR to stop filming and perform the following procedures.



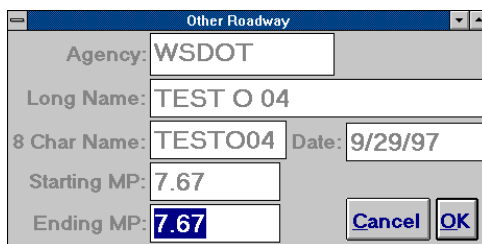
1. Press the **Esc** button. This will bring up a dialog box (above) asking if you want to keep this shoot. Provided everything was satisfactory, including the information in the data bank, click **Yes**.



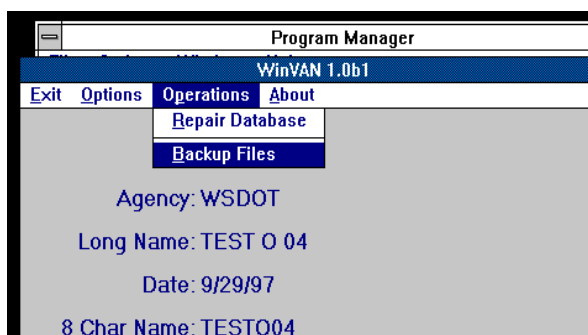
2. After clicking Yes in the previous dialog box, a new dialog box (above) will appear. Click **Yes** to Backup Image Files Now



3. You will then see a dialog box (above) that shows the number of images to process and a blue bar that works its way across the box until finished.



4. After the images have been saved, you are ready to begin a new survey or shut down the system. A dialog box (above) will appear with the previous route information so that you may swap the mileposts easily to do a survey in the opposite direction. Change data and Click **OK** to proceed.

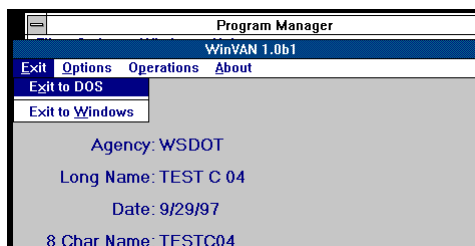


When stopping for lunch, stopping for the day, or after a particularly long shoot, a backup should be done. Click on the **Operations** menu and choose **Backup Files**. The program will automatically pick a drive to backup to. Choose **OK** when prompted.

Shutdown

Once all the data is saved, you can shut down the equipment. The process of shutting down is the reverse of the setup.

1. Go to "Program Manager."



2. Under **Exit**, select **Exit to DOS**. If you choose exit to Windows, from the desktop select **Shut Down**.
3. Shut down the laptop.
4. Turn off the monitor.
5. Turn off the tilt/pan controller.
6. Turn off the VCR.
7. Turn off the video PC.
8. Turn off the inverter.
9. Turn off the DMI.
10. Turn off the microphone.